Volume Contents

NUMBER 1

A. Chudnovsky, A. Dolgopolsky and **M. Kachanov**	1	Elastic interaction of a crack with a microcrack array—I. Formulation of the problem and general form of the solution
A. Chudnovsky, A. Dolgopolsky and **M. Kachanov**	11	Elastic interaction of a crack with a microcrack array—II. Elastic solution for two crack configurations (piecewise constant and linear approximations)
Mark Kachanov	23	Elastic solids with many cracks: a simple method of analysis
T. Mizusawa and **T. Kajita**	45	Vibration and buckling of rectangular plates with non-uniform elastic constraints in rotation
Hans F. Bueckner	57	Weight functions and fundamental fields for the penny-shaped and the half-plane crack in three-space
G. Z. Voyiadjis and **P. D. Kiousis**	95	Stress rate and the Lagrangian formulation of the finite-strain plasticity for a von Mises kinematic hardening model
A. Toledano and **H. Murakami**	111	A high-order laminated plate theory with improved in-plane responses
H. Murakami and **H. E. Read**	133	Endochronic plasticity: some basic properties of plastic flow and failure
R. Vaziri, M. D. Olson and **D. L. Anderson**	153	Dynamic response of axially constrained plastic beams to blast loads
C. S. Tang and **C. W. Bert**	175	Out-of-plane vibrations of thick rings
Yasuhide Shindo and **Hideaki Nozaki**	187	Impact response of a transversely isotropic cylinder with a penny-shaped crack
Abraham I. Beltzer and **Neima Brauner**	201	Shear waves in polycrystalline media and modifications of the Keller approximation

NUMBER 2

D. S. Drumheller	211	A theory for dynamic compaction of wet porous solids
J. P. Benthem	239	Stresses in the region of rounded corners

D. M. Haughton 253 Bifurcation of plane incompressible elastic membranes subjected to dead-load tractions

J. Lubliner 261 On uniqueness of solutions in generalized plasticity at infinitesimal deformation

R. K. N. D. Rajapakse and **A. H. Shah** 267 On the longitudinal harmonic motion of an elastic bar embedded in an elastic half-space

R. K. N. D. Rajapakse and **A. H. Shah** 287 On the lateral harmonic motion of an elastic bar embedded in an elastic half-space

W. Szyszkowski and **P. G. Glockner** 305 On a multiaxial non-linear hereditary constitutive law for non-ageing materials with fading memory

R. S. Rivlin and **G. F. Smith** 325 The description of material symmetry in materials with memory

NUMBER 3

M. B. Rubin 335 On the numerical solution of non-linear string problems using the theory of a Cosserat point

Hiroshi Kitagawa and **Hisashi Matsushita** 351 Flow localization in elastic–plastic material developing from stress-free surface

J. R. Booker and **J. P. Carter** 369 Withdrawal of a compressible pore fluid from a point sink in an isotropic elastic half space with anisotropic permeability

C. T. Tsai and **O. W. Dillon, Jr.** 387 Thermal viscoplastic buckling during the growth of silicon ribbon

B. M. Singh, H. T. Danyluk and **A. P. S. Selvadurai** 403 Thermal stresses in a transversely isotropic elastic solid weakened by an external circular crack

P. Gilormini and **Y. Germain** 413 A finite element analysis of the inclusion problem for power law viscous materials

Announcements

439 Fourth International Conference on Tall Buildings, Hong Kong and Shanghai, April–May 1988

439 International Symposium on Structural Failure, Massachusetts Institute of Technology, Cambridge, Massachusetts, U.S.A., 6–8 June 1988

NUMBER 4

W. H. Wittrick 441 Analytical, three-dimensional elasticity solutions to some plate problems, and some observations on Mindlin's plate theory

V. I. Fabrikant 465 The stress intensity factor for an external elliptical crack

David Durban 469 On two stress concentration problems in plane-stress anisotropic plasticity

H. C. Park and **R. S. Lakes** 485 Torsion of a micropolar elastic prism of square cross-section

Troels Ladefoged 505 A comparative study of shell equations by three-dimensional FEM analysis

G. I. N. Rozvany, T. G. Ong, W. T. Szeto, R. Sandler, N. Olhoff and **M. P. Bendsøe** 521 Least-weight design of perforated elastic plates—I

G. I. N. Rozvany, T. G. Ong, W. T. Szeto, R. Sandler, N. Olhoff and **M. P. Bendsøe** 537 Least-weight design of perforated elastic plates—II

NUMBER 5

Mario Cannarozzi 551 A minimum principle for tractions in the elastostatics of cable networks

Chin-Chan Chu 569 The analysis of multiaxial cyclic problems with an anisotropic hardening model

R. B. King and **T. C. O'Sullivan** 581 Sliding contact stresses in a two-dimensional layered elastic half-space

Bogdan Bochenek 599 Multimodal optimal design of a compressed column with respect to buckling in two planes

L. M. Brock and **M. Jolles** 607 Dislocation–crack edge interaction in dynamic brittle fracture and crack propagation

L. F. Boswell and **Z. Chen** 621 A general failure criterion for plain concrete

W. F. Chen and **S. P. Zhou** 631 Inelastic analysis of steel braced frames with flexible joints

Jaan Lellep and **Antoni Sawczuk** 651 Optimal design of rigid–plastic cylindrical shells in the post-yield range

Announcement

665 IUTAM Symposium on Structural Optimization, Monash University, Melbourne, Australia, 9–13 February 1988

667 Corrigendum

NUMBER 6

H. E. Lindberg, M. B. Rubin and **L. E. Schwer** — 669 Dynamic buckling of cylindrical shells from oscillating waves following axial impact

C. Y. Hui and **Andy Ruina** — 693 The "visco-plastic" approximation to Hart's constitutive law for inelastic deformation

Eric Reissner — 711 On a generalization of some formulas of the theory of "moderately thick" elastic plates

Larry A. Taber — 719 Asymptotic expansions for large elastic strain of a circular plate

G. Frantziskonis and **C. S. Desai** — 733 Constitutive model with strain softening

G. Frantziskonis and **C. S. Desai** — 751 Analysis of a strain softening constitutive model

M. B. Rubin — 769 On the numerical solution of spherically symmetric problems using the theory of a Cosserat surface

Paul B. Bailey and **Peter J. Chen** — 785 Natural modes of vibration of linear viscoelastic circular plates with free edges

Hideo Takabatake and **Osamu Matsuoka** — 797 Elastic analyses of circular cylindrical shells by rod theory including distortion of cross-section

Announcements

819 IUTAM Symposium on "Elastic Wave Propagation", Galway, Ireland, 20–25 March 1988

819 Pan American Congress of Applied Mechanics (PACAM), Rio de Janeiro, Brazil, 3–6 January 1989

NUMBER 7

J. C. Simo and **J. W. Ju** — 821 Strain- and stress-based continuum damage models—I. Formulation

J. C. Simo and **J. W. Ju** — 841 Strain- and stress-based continuum damage models—II. Computational aspects

W. P. Schonberg, L. M. Keer and **T. K. Woo** — 871 Low velocity impact of transversely isotropic beams and plates

C. C. Ma and **P. Burgers** — 897 Dynamic mode I and mode II crack kinking including delay time effects

Akira Hamamoto and **M. W. Hyer** — 919 Non-linear temperature–curvature relationships for unsymmetric graphite–epoxy laminates

V. M. Ayres, G. C. Gaunaurd, C. Y. Tsui and **M. F. Werby** — 937 The effects of Lamb waves on the sonar cross-sections of elastic spherical shells

Paul R. Dawson 947 On modeling of mechanical property changes during flat rolling of aluminum

David Hui and **Y. H. Chen** 969 Imperfection-sensitivity of cylindrical panels under compression using Koiter's improved postbuckling theory

D.-T. Chung, C. O. Horgan and **R. Abeyaratne** 983 A note on a bifurcation problem in finite plasticity related to void nucleation

A. Toledano and **H. Murakami** 989 A high-order mixture model for periodic particulate composites

Y. Weitsman 1003 Coupled damage and moisture-transport in fiber-reinforced, polymeric composites

J. M. Lifshitz and **M. Leibowitz** 1027 Optimal sandwich beam design for maximum viscoelastic damping

J. D. Achenbach, N. Nishimura and **J. C. Sung** 1035 Crack-tip fields in a viscoplastic material

Charles W. Bert and **Victor Birman** 1053 Dynamic instability of shear deformable antisymmetric angle-ply plates

P. Tuğcu and **K. W. Neale** 1063 Necking and neck propagation in polymeric materials under plane-strain tension

Announcements

1087 Symposium on Parallel Computations and their Impact on Mechanics, ASME Winter Annual Meeting, Boston, Massachusetts, 14–17 December 1987

1087 Symposium on Constitutive Equations and Life Prediction Models for High Temperature Applications, Joint Meeting of the ASME and Society of Engineering Science, University of California, Berkeley, California, 20–22 June 1988

NUMBER 8

W. T. Ang and **D. L. Clements** 1089 On some crack problems for inhomogeneous elastic materials

B. Storåkers 1105 Deflection bounds for plane membranes at moderate rotations

Chuen-Yuan Chia 1123 Non-linear free vibration and postbuckling of symmetrically laminated orthotropic imperfect shallow cylindrical panels with two adjacent edges simply supported and the other edges clamped

H. Ghoneim and **S. Matsuoka** 1133 Thermoviscoplasticity by finite element: tensile and compression test

Reaz A. Chaudhuri and **Paul Seide** 1145 An approximate method for prediction of transverse shear stresses in a laminated shell

Richard D. Parbery 1163 Minimum weight bars for given lower bounds on Euler buckling load and frequency of longitudinal vibration

Carl K. Youngdahl 1179 Effect of pulse shape and distribution on the plastic deformation of a circular plate

R. K. Mittal 1191 A simplified analysis of the effect of transverse shear on the response of elastic plates to impact loading

NUMBER 9

T. P. Harrigan and **R. W. Mann** 1205 State variables for modelling physical aspects of articular cartilage

U. Gamer 1219 The shrink fit with elastic–plastic hub exhibiting constant yield stress followed by hardening

X. Q. Wu, C. Liu and **T. X. Yu** 1225 A bifurcation phenomenon in an elastic–plastic symmetrical shallow truss subjected to a symmetrical load

Paul S. Steif 1235 An exact two-dimensional approach to fiber microbuckling

N. Laws and **J. R. Brockenbrough** 1247 The effect of micro-crack systems on the loss of stiffness of brittle solids

N. Laws and **G. J. Dvorak** 1269 The effect of fiber breaks and aligned penny-shaped cracks on the stiffness and energy release rates in unidirectional composites

A. Molinari and **M. Ortiz** 1285 Global viscoelastic behavior of heterogeneous thermoelastic materials

D. H. Allen, C. E. Harris and **S. E. Groves** 1301 A thermomechanical constitutive theory for elastic composites with distributed damage—I. Theoretical development

D. H. Allen, C. E. Harris and **S. E. Groves** 1319 A thermomechanical constitutive theory for elastic composites with distributed damage—II. Application to matrix cracking in laminated composites

Announcement

1339 Symposium on Advances and Trends in Computational Structural Mechanics and Fluid Dynamics, Sheraton National Hotel, Washington, D.C., 17–19 October 1988

NUMBER 10

G. W. Brodland and **H. Cohen** 1341 Deflection and snapping of spherical caps

T.-L. Sham 1357 A unified finite element method for determining weight functions in two and three dimensions

I. Jasiuk, E. Tsuchida and **T. Mura** 1373 The sliding inclusion under shear

M. G. Koller and **H. Kolsky** 1387 Waves produced by the elastic impact of spheres on thick plates

Yavuz Başar 1401 A consistent theory of geometrically non-linear shells with an independent rotation vector

H. Schoop 1417 On optimum finite element grids for a chord

K. N. Sawyers 1425 Development of the bifurcation condition for a thick elastic plate

R. C. Batra 1435 Effect of material parameters on the initiation and growth of adiabatic shear bands

A. A. Khdeir, J. N. Reddy and **L. Librescu** 1447 Analytical solution of a refined shear deformation theory for rectangular composite plates

NUMBER 11

P. D. Panagiotopoulos and **P. P. Lazaridis** 1465 Boundary minimum principles for the unilateral contact problems

David Hui, P. C. Xirouchakis and **Y. H. Chen** 1485 Non-stationary creep behavior of floating ice beams under lateral loads

C. Făciu and **M. Mihăilescu-Suliciu** 1505 The energy in one-dimensional rate-type semilinear viscoelasticity

R. Ilankamban and **D. Krajcinovic** 1521 A constitutive theory for progressively deteriorating brittle solids

Sailendra N. Chatterjee 1535 Three- and two-dimensional stress fields near delaminations in laminated composite plates

K. Dems, R. H. Plaut, A. S. Banach and **L. W. Johnson** 1551 Optimization of elastic foundation for minimum beam deflection

Kil Soo Kim and **Robert L. Piziali** 1563 Continuum models of materials with beam-microstructure

Announcement

1579 European Mechanics Colloquia 1988

NUMBER 12

P. S. Theocaris and **G. A. Papadopoulos**	1581	The dynamic behaviour of sharp V-notches under impact loading
Theodore Nicholas, A. M. Rajendran and **David J. Grove**	1601	Analytical modeling of precursor decay in strain-rate dependent materials
Shirish P. Patil	1615	Natural frequencies of an infinite beam on a simple inertial foundation model
Ali H. Nayfeh and **Raouf A. Raouf**	1625	Non-linear oscillation of circular cylindrical shells
R. S. Rivlin and **G. F. Smith**	1639	A note on material frame indifference
Anne Hoger	1645	The stress conjugate to logarithmic strain
R. B. King	1657	Elastic analysis of some punch problems for a layered medium
N. G. Stephen, P. J. Wang and **X. L. Shi**	1665	Stretch and twist of rotating prismatic beam
Harindra Rajiyah and **Subrata Mukherjee**	1679	Boundary element analysis of inelastic axisymmetric problems with large strains and rotations
	i	**Volume Contents and Author Index for Volume 23, 1987**